
HARRY CARTER: Optical scale in type founding

The article below and on the next four pages first appeared in *Typography 4* of autumn 1937. *Typography* was edited by Robert Harling. We are grateful to him, and to Matthew Carter RDI, Harry Carter's son and a member of the Printing Historical Society of which his father was Vice-President, for permission to reprint. The article, reduced to 93 per cent, is reproduced from Vivian Ridler's copy of *Typography 4*, for the loan of which we thank him.

FOR THE PURPOSE of this article it is easiest to classify sizes of type in three groups—large, medium and small. The printer or designer called on to work in one of these size-groups chooses a face that shows up well in it. *Plantin*, for example, is very popular in small sizes up to 10-point; *Imprint* is used a great deal in 11-, 12- and 14-point; *Fry's Baskerville* is a favourite for large display. But there are no type-faces that excel in all three groups—hardly any, in two of them.

Typographers accept the situation, and show their skill by calling for this or that type as the best design for the scale in which they are working. It is no hardship to them to leave unused the many available poor designs in any of the three groups. For the printer, and more especially the typefounder, on the other hand, it is wasteful to make and stock type-faces in unwanted sizes.

Nowadays, if a typefounder puts a new design of type on the market, he reproduces it in a big range of sizes, and the composing-machine makers are willing to oblige a customer by cutting any size of a given face at short notice. In the days when punches were hand-cut and the production of type was slower and more expensive it was common to reproduce a type only on large bodies or only on small ones. In the 19th century there were many new types whose range did not extend upwards beyond 9- or 10-point; there were also many specially designed large founts called two-line letters. In cutting their types in all sizes from 6- to 72-point the modern foundries are going back to an earlier practice. All the great punchcutters of the 16th–18th centuries, except, I think, Fleischman, cut (or collected) a complete range of sizes; but they did not set themselves such a rigid standard of uniformity in design as the present-day typefounders. The *Caslon* types are an example of a face made for all the bodies in common use with a much greater variation of design than a modern punchcutter would permit himself. Caslon went so far as to buy an existing type, cut 50 years before his time, for his Canon

Harry Carter was much more than a punchcutter, a type-designer, and a printing historian, but those are the particular abilities he brought to bear in this article on problems of type design which have not yet been solved in the field of photo-composition – or not, at least, in terms of types which are generally available.

In future issues of the *Bulletin* we shall be republishing more short articles of value not easily accessible to most members of the Society.

Quintilian, when alluding to the education of youth, thus expresses himself: 'When the boy has begun to trace the forms of the letters, it will be useful for him to have the letters of the tablet engraved, that through them, as through furrows, he may draw his style. For thus he will neither make mistakes, being prevented by the edges on

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1. News-size. *Plantin* and *Times Roman*

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2. Book-size. *Monotype Imprint* and *Linotype Georgian*

Perpetua

Baskerville

3. Display-size. *Monotype Perpetua* and *Fry's Baskerville*

size; moreover, by modern standards we should hardly judge his 14-point and his 18-point to be members of one family.

It is worth considering whether the modern type-producers ought not to allow themselves more latitude in adapting a general design for a face to the various bodies on which they put it. Now that punches are cut under industrial conditions by a mechanical process it is easy to make the various sizes perfectly uniform—easier, in fact, than to differentiate them. A hand-punchcutter would have had to be extremely skilful to reproduce precisely the same letters on a dozen different scales. It is clear to anyone who can examine enlargements of hand-cut types that the good punchcutters varied the design, or at any rate the functional features of it, to suit the scale on which they worked. They did so instinctively because they corrected their work by eye, and they had the wisdom not to let mathematical rules override their judgment. The modern process of type-production, being departmentalized, lacks the advantage of being controlled during its progress by one expert eye. One man draws the type, another cuts it; corrections can only be made by scrapping valuable work. Because of the additional labour and time involved in making drawings for each size of type, and separate sets of patterns for the cutter to follow, differentiations between sizes are kept down to a minimum in modern typefounding.

There are some types, sanserifs particularly, that are patient of rule-of-thumb enlargement and diminution; it is the calligraphic types that need carefully adapting for various sizes. During the last twenty years industrial type-production has learned a good deal from the old masters of punch-cutting. The majority of present-day book-founts are modelled on hand-cut originals belonging to an earlier age, and the study of old types has certainly improved the typefounder's technique. The types of twenty-five years ago were too much influenced by the facility of the pantographic drill, which can cut the Lord's Prayer in relief on a $\frac{1}{8}$ -inch square. When the machine first came into use the tendency was to show off its marvellous precision: later on, people realized that the pantography, with all its advantages of speed and low labour-cost, could do nothing worth while that a hand-cutter could not do.

A type-design is usually judged by its suitability for a page of an octavo book, and so the 11- to 14-point sizes are the most critically examined. I think it is true to say that text-types stand or fall by the technical skill of their execution rather than by the beauty of their design. Lack of interest in the design only becomes a serious objection when the type is drawn for a body of 16-point or more.

For many centuries Caslon's pica has been a favourite, and yet as a piece of drawing it is relatively dull. It has

abcdefghijklmnop
 hijklmno
 pqrstuv
 wxyz

Above: 9-point Modern Extended—the type used until lately for 'The Times.' A very fine engineer's job, but a poor design for reproduction on so small a scale

nd
 nd

The 6-point and 10-point hand-cut by Walbaum. The relatively low join in the n and bolder serifs in the smaller size are good features

the degree of blackness that suits most people best, the letters have a good balance of thick and thin, and, above all, the spacing is even.

When the justifier makes the matrices for a fount he spaces the upright strokes of adjoining letters at the interval between the strokes of **m** or **ffi**. The width of the **m** is the key to the spacing of the whole fount of three alphabets. The letters with two parallel strokes **n u h fi** have a wider interval than the strokes of **m**, and it must be just the right amount wider to make a pleasing alphabet. The whites of **d o p** and other round letters are a little wider than the white in **n**. If the punchcutter does not make the spacing of **m n o** happily, the best justifier cannot make the letters into an evenly-spaced fount.

Good spacing between letters is a primary need of a text-type, and it is linked up with good spacing between lines. A letter is well matched with its body when the vertical and horizontal spacing give an even texture to the page. Several contemporary 12-point types fail because their ascending and descending strokes have been shortened until there is not enough white between the lines, and leading only accentuates their deformities. *Baskerville*, on the other hand, is meant to be leaded: set solid it has a bad balance between vertical and horizontal spacing, but leading restores the equilibrium.

Good alignment is another important virtue in medium-sized types; and it does not only depend on accurate placing of the letters higher or lower on the body: it depends very much on the art of the designer and cutter. The round and pointed sorts **e o v y** must be just so much taller than the **x** to give the alphabet an apparently uniform height, and the bowls of **b** and **p** must be the right amount smaller than **o**. Narrow spacing of the letters gives the type a strongly-marked alignment. I much admire the strong alignment of French Old-Face types, of which 10-point *Janson* (of 16th-century French or German origin) is probably our best surviving example. They achieve, without leading, the regimentation of line that Bodoni could only get by the use of leads.

Legibility is all that matters in 6- to 10-point types; so that their successful design is a technical, and not in the ordinary sense an artistic, achievement. None of the classical old-face types is good value in the small sizes. The punchcutters of the 16th-18th centuries when they cut diminutive types were thinking of footnotes and marginal notes to texts set in larger founts, and they had not to think seriously of the problem of making long texts readable in small type. When newspapers came in fashion this problem became a very urgent one. Of the great punchcutters, Fleischman was the only one who studied the newspaper market: he was a superb cutter of small types, and in refinement of design and execution his news founts are unsurpassed even now.

Nearly all the old faces have ascending and descending

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12-point Caslon. A well-conceived book-type, not specially good in point of finish

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14-point Lutetia. A beautiful design with irregular spacing that makes it hard to read

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12-point Monotype Light Face Plantin. There is not enough white between the letters either horizontally or vertically

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10-point (Didot) Janson. A beautiful 16th-century face. (The s is new, and wrong)

Plantin

Times New Roman

Large sizes of two types that are excellent on small bodies. Both look like enlargements: neither is beautiful

strokes that are too long in small sizes, and the modern reproductions have the defect of the originals. An exception is *Plantin*, modelled on a post-Plantin 'English'-bodied fount (13½-point). In medium and large sizes *Plantin* does not seem to me to be good; but from 10-point down it is one of the most legible types we have.

The small sizes of *Plantin* embody what are supposed to be the requirements of a good small type. It is bold in colour, has magnified strong serifs, little contrast between thick and thin strokes, shortened ascending and descending strokes, and wide letters. It has always been held by writers on typefounding that in small founts the functional features of the letters—the serifs, bulbs, notches at the junctions of strokes, and tapering ends to letters such as *c e a*—should be emphasized. This seems reasonable: whatever is there should be fully visible. *Plantin* fits in with these preconceptions; but *Times Roman*, which most people find the easiest to read of small text-types, runs counter to some of them. The *Times* fount has small serifs and fine hairlines.

The designer of the *Times Roman* avoided blunt serifs and thickened hairlines because he found that they wore down more noticeably than sharper-cut features. Wear is a bugbear in newspaper types because they are subjected to a great deal of stereotyping and rough-and-ready impression. It is true that *Plantin* type shows wear very obviously.

Although modern mechanically-produced types are clearer in small sizes than the old hand-made ones—more on account of improved casting than improved cutting—the best hand-cut types have refinements of execution that the industrial technique has not adopted. Fleischman made very beautiful junctions of thick and thin strokes: in *h m n* the join comes low down in the letter and the effect is clearer than that of the joins in the *Times* fount or *Plantin*.

In the design of founts from 20- to 72-point the artist comes into his element. The eye dwells on big letters instead of hurrying from one to another as quickly as it can make out their meaning, as it does in reading text-sized types. Every letter must therefore be worth looking at for its own sake. There are a great many contemporary faces that do not pass this test.

There is no technical virtuosity about the fact of cutting a 24-point letter: the problem is an artistic one. The pleasure given by a fine large type comes from the beauty of the design and the beauty of the workmanship. Only a really well-conceived, well-proportioned letter is worth reproducing big, and the poor design of a good many 19th-century types shows up sadly when they are cut for 48-point.

There are also many modern big types which suffer from a lack of finish. The fine lines should be cut down to a hair's breadth, the serifs should taper to the finest

An 8-point by Fleischman

Caslon's 8-point. The ascending stroke is too long for so small a type

8-point Times Roman. A criticism of detail is that the bowl of the *d* is rather too tall for good alignment

8-point Plantin. An excellent small-type design

of points, and the curves should be works of art. A big type with coarse features disturbs the eye in reading small type close to it.

Shortened descending and ascending strokes are unforgivable on bodies over 18-point. It is quite legitimate to shorten the tails of the small founts to increase legibility and to lengthen them in the display sizes of the same face for the sake of elegance.

The various sizes of type have all to be looked at in one focus. A hairline or a serif should be equally noticeable in a 72-point and in a 6-point, and not more prominent in one than in the other. The eye reads only the distinguishing features of the letters, and so the distinguishing features should be stressed in proportion to the difficulty of reading. It has been demonstrated that the upper half of a line of type can be read easily, whilst the lower half is meaningless. This experiment justifies cutting down the tails of small letters, and explains why a design like *Times Roman* with strong arches to the tops of *h m n* is easier to read in newspaper sizes than *Modern* with fine lines at the tops of those letters. It must not be forgotten that the eye relies partly on the white spaces inside letters, so that the strokes must not be thickened without widening the characters to preserve the balance of black and white.

There has been too much of a tendency to design the face for setting the pages of a book, and then to make larger and smaller sizes by mechanical enlargement and diminution. The design must have beauty enough for large sizes and legibility enough for small ones; and these qualities must be stressed in the appropriate degree for each size. Types which lack either good quality should be only cut in the sizes for which they are suitable.

The types reproduced as illustrations show that large and small types can be satisfactorily made in several conventions, Old Face, Semi-Modern and Sanserif, for example. The Modern face is not a really legible design. But the design must be interpreted freely to fit it for reproduction in one scale or another. Caslon's Canon seems to me the appropriate 48-point to go with 8-point *Plantin*. 8-point *Times* should have a display size very much like *Fry's Fat Face*. The beautiful large letter from Lacolonge is the counterpart of 13-point *Aldine Bembo*. A modern typesetter would have called Walbaum's large types 'Bold' and not 'Medium' face, and yet it is their rich colour that makes them so valuable in display. Most of our large founts are too skinny to be effective.

The whole problem of adapting type-design to optical susceptibilities is a fascinating and a very difficult one. It is only possible to nibble at it without having proper experimental apparatus and ample time. At the best an article like this can only show that the problem deserves to be studied.

Centaur Cloister

14-point Cloister modelled on Jenson

Two faces modelled on Jenson's book-type. The functional features of pen-work are less pleasing on this large scale

L'innocence
est cet état de
l'enfance, qui ne
fait pas encore
ce que c'est que

Well-made, well-conceived French Old-face (Lacolonge 1773)

Fat Face

Fry's Fat Face, c. 1820, can be put near text type without disturbing focus

Caslon Canon

Caslon's Canon, cut by Moxon c. 1670, combines the functions of a type and of an ornament

Walbaum

Walbaum, c. 1810, valuable for its 'colour'